

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/616,457

Appellant: Manfred Herrmann

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Confirmation No. 1034

Title: METHOD AND APPARATUS FOR THE  
INVESTIGATION OF A FUEL CELL SYSTEM

Art Unit: 1745

Examiner: O'Neill, Karie Amber

Attorney Docket No. GP-301716 (7608.3031.001)

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**REPLY BRIEF**

Sir:

This is Appellant's Reply Brief in response to the Examiner's Answer of December 26, 2007. The rejection of Appellant's claims continues to be based upon errors in fact and law and Appellant respectfully requests reversal of the same.

Appellant maintains that the rejection of Applicant's claims are repeat with errors in fact and law. The most blatant of which will be covered first.

The Board's attention is respectfully directed to page 17, to the second paragraph under the heading Rejection of Claims 4-5 and 11-12 Under 35 U.S.C. 103(a). Here, the Examiner relies on Knights et al, particularly column 8, lines 4-28, as teaching a method of detecting a leak within a fuel cell, with one specific test being to detect external leaks by monitoring the external

environment, the environment being the surrounding environment outside of the fuel cell, and wherein the Examiner takes the position that the outside environment is not a chamber and therefore Knights et al clearly teaches testing outside of a test chamber. However, the Board's attention is respectfully directed to Knights et al, column 8, lines 27-32 which indicates that the tracer used is a fluid that is chemically unreactive with the fuel cell components, such as helium, argon, nitrogen or sulfur hexafluoride. The Board's attention is respectfully directed to independent claim 1 from which claim 4 depends which recites, inter alia, "said first test being carried out with a mixture of at least one inert gas with a fuel permissible for the operation of the fuel cell system." The chemically unreactive fluid such as helium, argon, nitrogen or sulfur hexafluoride is not a fuel permissible for operation of the fuel cell system as recited in claim 4 (which depends from claim 1). The rejection of claims 4-5 and 11-12 were based upon an error in fact with respect to what Knights et al discloses. Reversal of the rejection is respectfully requested.

The Board's attention is respectfully directed to the Examiner's Answer at page 18, in the last paragraph under the heading of Rejection of Claims 6-7, 9, 18-21, 31-32 and 46 under 35 U.S.C. 103(a). In response to Appellant's argument, the references do not disclose at least one of the tests being carried out during the manufacture of a vehicle incorporating said fuel cell, or carried out in a workshop after repair of a vehicle, or carried out on a bench test during development of a fuel cell system. The Examiner in support of the rejection makes the conclusionary statement that: "Conducting the tests in a specific location does not further limit the claimed invention." In essence, although the Examiner addresses claims 6-7 and 9, the limitations regarding where the test is conducted are truly ignored. The Examiner provides no support in legal authority for the position that conducting the test in a specific location does not

further limit the claimed invention. Nor does the Examiner offer any support for the position that it would have been obvious to conduct the test where the fuel cell is located. To the contrary, persons skilled in the art would be deterred from conducting tests of the fuel cell at the time the vehicle is manufactured, at a workshop after repair, or on a test bed because of the risk of auto-ignition of hydrogen in an environment which does not have adequate safety precautions such as those that exist in a test chamber. The common knowledge at the time the invention was made and the references as a whole teach conducting such tests in a test chamber which includes adequate ventilation and blow-out walls and other safety features. As a consequence, when a fuel cell needs to be tested, the fuel cell is disconnected from all of the components in the assembly line, repair facility or test bed, placed in a test chamber and thereafter connected to all of the appropriate equipment including sources of hydrogen and oxygen. After the test is conducted, the fuel cell then needs to be disconnected from the test equipment in the test chamber including the sources of hydrogen and oxygen and then put back on the production line, test bed or repair facility bench. This adds a substantial amount of time and labor.

The Board's attention is also respectfully directed to the Examiner's Answer at page 20, under the heading Rejection of Claim 15 Under 35 U.S.C. 103(a). In response to Appellant's argument that Bailey et al does not measure the amount of gas entering and leaving the fuel system, the Examiner takes the position that the point being argued is not in the claim limitations for claim 15. However, as stated in Applicant's Appeal Brief, claim 15 depends from claim 13 which clearly recites *inter alia* "said quantity of said mixture is measured" and "a measurement is made of a quantity of said mixture emerging from at least some of said lines, a sum is formed of said emerging quantities and is compared with said feed-in quantity to determine any leakage,

which appear as a difference value.” Clearly, the Examiner has ignored claim limitations of claim 15 which are clearly expressed in claim 13 from which claim 15 depends. Reversal of the rejection is respectfully requested.

The Board’s attention is respectfully directed to the Examiner’s Answer at page 14, second paragraph, wherein the Examiner states: “However, Appellant argues that the tests are not conducted outside of a test chamber. The tests of the applied references are conducted outside of a test chamber as they are done in a fuel cell.” This rejection is based upon error in fact and law. The references of record are silent or teach that the tests should be conducted in a test chamber to eliminate the possibility of auto-ignition of hydrogen. Contrary to the Examiner’s position that because the tests are conducted in a fuel cell does not mean that the tests are not conducted in a test chamber. Even giving the Examiner the benefit of the doubt that the references can be characterized as teaching the tests as being done in a fuel cell, if the fuel cell is in a test chamber, then the tests are also conducted inside of the test chamber. As such the tests are not “outside of a test chamber” as recited, for example, in Appellant’s independent claim 1.

The rejections are based in error as of law in that the rejections are based on an improper application of the Doctrine of Inherency. The Board’s attention is respectfully directed to the paragraph bridging pages 14 and 15 of the Examiner’s Answer wherein the Examiner in the block quote acknowledges that the reference (Condit et al) is silent about the requirement of a test to be conducted outside of a test chamber and acknowledges that where a claimed invention feature may be inherently anticipated if the missing feature is necessarily present in that which is described in the reference. The Examiner further acknowledges that inherency is not established by probabilities or possibilities citing MPEP 2112. Then, however, the Examiner takes the

position that the claim limitation is inherently anticipated because the tests occurred in a fuel cell. The Examiner does not explain how following Condit et al (U.S. Patent No. 6,635,370) would result in the tests necessarily being conducted outside of a test chamber. The fact that the reference may suggest testing the anode side of the fuel cell does not necessarily mean that the test is conducted outside of a test chamber. The wisdom at the time the invention was made and the references as a whole teach conducting such tests in a test chamber with adequate safety equipment such as ventilation systems and blow-out walls to eliminate the possibility of auto-ignition of hydrogen or, in the case of auto ignition of hydrogen, increased pressure is relieved by features of the test chamber such as blow-out walls. The fact that a test may be conducted on the anode side of the fuel cell does not necessarily result in the claim limitation that the test be conducted outside of the test chamber.

The Board's attention is respectfully directed to page 16 of the Examiner's Answer, last paragraph, wherein the Examiner takes a similar position with respect to anticipation by Bailey et al (U.S. Patent No. 6,638,650), wherein the Examiner states: "Because Bailey et al discloses that the test being conducted occurs at the anode side of the fuel cell system, the anode side of the fuel cell system being in an ambient environment." However, the Examiner has pointed to nothing in the Bailey et al reference to suggest that the tests are indeed conducted in an ambient environment. Furthermore, the term "ambient" simply means a surrounding environment. The surrounding environment can be the environment of a test chamber.

Claim 44. The rejection of claim 44 is improper as being based upon error in fact. The Board's attention is respectfully directed to page 17 of the Examiner's Answer, first paragraph, wherein the Examiner acknowledges that Appellant argues that Bailey et al fails to disclose "supplying said mixture from a mixture tank." However, the Examiner then takes the position

that Bailey et al discloses that the fuel cell stream supply to the anode is a gas of pure hydrogen or a reformate stream comprising hydrogen and other fuel components including nitrogen. The Examiner concludes that because the fuel contains other components, such as nitrogen, makes it a mixture and the tank in which the gas is supplied is considered a mixture tank that contains a mixture of gases. However, this rejection is based upon error in fact. The disclosure of a fuel such as gasoline or methanol may be introduced into a reformation reactor and reformed to produce hydrogen and other components such as carbon monoxide and carbon dioxide does not disclose supplying the hydrogen and nitrogen from a mixture tank. A reformation reactor is not a mixture tank as disclosed and claimed in the present invention. Reversal of the rejection of claim 44 is respectfully requested.

In view of the above argument and those set forth in Appellant's Appeal Brief, Appellant respectfully requests reversal of the rejection of Appellant's claims.

Respectfully submitted,

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